



# Northfleet Embankment West

Laser Scan & Photogrammetry Survey



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## Quality Assurance

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### DATA LICENCES

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## Summary

Wessex Archaeology has been commissioned by RPS Consulting Services to undertake a measured survey of brick structural remains, exposed during the demolition phase of redevelopment works at the former Northfleet Cement Works, Gravesham.

The survey covers an area of 1243.60 m<sup>2</sup>, centred on centred on NGR 562040 174790. The survey was carried out using both terrestrial laser scan and photogrammetry techniques, controlled by total station and geospatially located using a GNSS system. The purpose of the survey was to create an accurate record of the structural remains. By cross-referencing the record produced to the historical OS data, the site is believed to form part of the former Bevan cement works.

## Acknowledgements

Wessex Archaeology would like to thank Richard von Kalinowski-Meager, Archaeological Consultant and Director at RPS Consulting Services Ltd (London), for commissioning the survey. Wessex Archaeology is also grateful for the advice of Casper Johnson, Senior Archaeological Officer, who monitored the project for Kent County Council.

The metric survey was completed by Roberta Marziani with the assistance of Thomas Marshall, Kasandra Boguslawska and Anthony Russell.



# Northfleet Embankment West

## Laser Scan & Photogrammetry Survey

### 1 INTRODUCTION

#### 1.1 Project and planning background

1.1.1 Wessex Archaeology was commissioned RPS Consulting Services Ltd (London), to undertake a metric survey of a previously unknown 19<sup>th</sup> century “bottle” kiln and surrounding structures located in the Land at Northfleet Embankment West, formerly Northfleet Cement Works, in Gravesham, Kent, DA11 6DD, centred on NGR 562040 174790. TQ 62040 74790 (**Fig. 1**).

1.1.1 The development works comprises the construction of residential and commercial properties, an open playing field and a Heritage Park, along with associated ground works (*Land at Northfleet Embankment West WSI, WA 2020*).

1.1.2 The survey was completed to fulfil condition 20 as defined in the outline planning permission for the development (EDC/16/0004).

1.1.3 During 2020/2021, other investigative work has been carried out for this development project: watching briefs, geoarchaeological survey, excavation and mitigation. The structures were uncovered during subsequent clearance works.

1.1.4 The features include a “bottle” shaped cement kiln, three bays, vaulted run-offs/ channels, a possible tunnel, and a vaulted structure. The structures are adjacent to, and most likely part of, the Bevan site, operating from at least 1851 (HER TQ67SW459).

1.1.5 All exposed and accessible structures were surveyed and all work was undertaken in accordance with Historic England Guidance. These include *Photogrammetric Applications for Cultural Heritage* (2017) and *Metric Survey Specifications for Cultural Heritage* (2015) which detail the aims, methodologies and standards that were employed.

1.1.6 The survey work was undertaken on the 19<sup>th</sup> and 20<sup>th</sup> October 2021.

#### 1.2 Scope of the report

1.2.1 The purpose of this report is to provide a detailed description of the methods of the metric survey and to assess whether the aims of the survey have been met and to discuss the survey results.

1.2.2 The presented results will provide further information on the archaeological resource that have been impacted by the ongoing development and facilitate an informed decision regarding the requirement for, and methods of, any further archaeological mitigation.

#### 1.3 Location, topography and geology

1.3.1 The site is located within the former Northfleet Cement Works at Northfleet, Kent (**Figure 1**). It is situated on the south bank of the Thames and on the eastern side of the Ebbsfleet



Valley. The Site is surrounded by previously quarried land, and much of the Site itself was previously quarried (*Land at Northfleet Embankment West WSI, WA 2020*).

- 1.3.2 The survey area is in a parcel of land between the end of The Creek and west of The Shore which runs along River Thames. Most of the area to the east is occupied by Tarmac Cement and Lime's commercial structures and lorry car park now mainly used as site compound for the development works.
- 1.3.3 The Site currently consists of open grassed areas that are within and adjacent to former chalk quarry workings, and areas of concrete hard standing where the now demolished cement works buildings once stood.
- 1.3.1 The natural ground surface reaches c. 20 - 15 m above Ordnance Datum (aOD) at the southern boundary of the Site. Ground levels within the site have been substantially modified by excavation and removal of the buried structures and by prior quarrying and substantial backfilling, but generally the ground level slopes down northward to c. 5 m aOD.
- 1.3.2 According to the British Geological Survey mapping (BGS online viewer), the bedrock geology underlying the Site consists of Upper Cretaceous deposits of the Seaford Chalk Formation (89.8-86.3 mya). At the highest, southernmost part of the Site, this is overlain by Thanet Sand (59.2-56 mya) (*Land at Northfleet Embankment West WSI, WA 2020*).

## **2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

### **2.1 Introduction**

- 2.1.1 This section has been largely informed by online resources including the Cement Plants and Kilns in Britain and Ireland website (Dylan Moore), aerial photography on the Britain from Above website, and various historic mapping websites. All sources are listed in the references.

### **2.2 Archaeological and historical context**

- 2.2.1 Northfleet gets its name from the River Fleet now known as the Ebbsfleet River, which joins the Thames at this point. Northfleet is mentioned in the Domesday Survey and was historically rural and marshy. As described in 1797, the parish contained numerous chalk pit quarries along the banks of the Thames between the hamlet of Northfleet Hythe and Gravesend; and many people were employed in the excavation, manufacture and export of chalk and lime. The location of the site was then part an estate called The Hive, held by Mr Wadman (Hasted 1797, 302-308).
- 2.2.2 The area around Northfleet creek, where the brick kiln has been recorded, became a focal point of the cement industry during the late 18th and 19th century.
- 2.2.3 James Parker, who had been engaged in lime burning in the area for more than 10 years, discovered and quickly patented "Roman cement" in 1796. Parker set up the Parker & Wyatt cement works on a site which spanned Northfleet Creek and was centred on an existing tidal water mill which he leased and used as part of the works.
- 2.2.4 However, the Northfleet Tithe Map and apportionment dated 1838 and 1839 (not reproduced) show the location of the surveyed features had not yet been industrialised. It is depicted as plot 85, a pasture which formed part of the park owned by Thomas Sturge and occupied by Mrs Eliza Kirwan.





- 2.2.5 The manufacture of modern Portland cement in the area began with arrival of William Aspdin, son of the owner of the original 1824 patent. William Aspdin began manufacture of Portland Cement at Rotherhithe in 1842. He relocated to Northfleet in 1846, taking over the site of James Parker's original Roman cement works at the Northfleet Creek tidal mill. However, in 1851, Aspdin was excluded from further involvement with the business after financial irregularities came to light. Two of the former partners Robins and Cox then formed a new company called Robins and Co.
- 2.2.6 On leaving the company, Aspdin spent time as a consultant to Thomas Sturge, who set up the adjacent cement works, later called Bevans, in 1851 to the east of Robins and Co.. The surveyed features are located within the Bevans site. Bevans was the fifth plant established on the Thames and became second only to Swanscombe in size during the 19th and early 20th century. Between 1853-1900 it was owned by Knight, Bevan and Sturge who were then amalgamated into the Associated Portland Cement Manufacturers Ltd (APCM) which became known as the Blue Circle Group. APCM operated the Bevans works from 1900 until its closure in 1970.
- 2.2.7 The 1864-79 Kent and 1885 Essex Ordnance Survey maps show that the various cement works at Northfleet then extended as far as terraced housing on (the now truncated) Lawn Road, with a chalk quarry and engineering works further west. The surveyed features are located on the site of a square plan structure, possibly a kiln, shown on the 1864-79 and 1885 OS maps (**Figure 2**). This structure was the east one of a group of similar buildings in this area (seven or eight by 1885). The maps depict a group of wash mills to the north-east of the surveyed features, Hive House and a series of slurry beds to the south and a gas works to the east.
- 2.2.8 There was a major reorganisation of the Bevans works in the 1870s, centralising a previously dispersed layout. By 1900, there were 59 kilns in operation with a registered capacity of 1700 tons a week.
- 2.2.9 The 1897 Kent and 1898 Essex OS maps suggest that the group of possible kilns had been modified and rebuilt, with further development to the north, and north-east around the docks and south-east to the rear of the terraced housing on Lawn Road. The mid-19th century structure on the site of the surveyed features is one of the buildings that appears to have been rebuilt. It is depicted as a rectangular plan block with a projecting block on its east side and channels extending from the east side leading south to the slurry beds. Hive House had been demolished and the slurry beds expanded by this point, with terraced housing and new residential streets built further south along the High Street. A pre-1898 engraving of the Knight, Bevan and Sturge cement works, shows a view of the works from the river, with Hive House in the background (Wikimedia commons).
- 2.2.10 In 1903, twenty kilns on the Bevans plant were demolished to make way for rotary kilns: the rest were decommissioned by 1911. The 1909 Kent OS map shows what appears to be the same structure as the 1897 and 1898 maps on the location of the surveyed features but with a new, much larger kiln building constructed adjacent to the east and new kiln feed slurry storage/mixers built to the south laid out in a circle.
- 2.2.11 The original rotary kilns were cleared in 1921 to be replaced by larger kilns in the 1920s. However, because of the plant's confined site, the redevelopment could only be accomplished by complete shutdown and demolition of the previous kilns, which took five years. The new kilns opened in 1926.



- 2.2.12 An anonymous article in Cement and Cement Manufacture, volume 1 (1928) describes the Bevans plant immediately after its 1920s rebuild. Numerous aerial photographs dated 1927 and 1939 from the NMR Aerofilms collection (Britain from Above website, not reproduced) and the 1938-39 Kent OS map (not reproduced) show the cement works after its redevelopment. They illustrate that the 19th century structure on the site of the surveyed features had been replaced.
- 2.2.13 The Bevans plant remained one of APCM's base-load operations for forty years and was the primary exporting plant. In 1957, one of the kilns (B1) was modified for semi-wet process, but this was relatively unsuccessful, and shut down in 1967. The rest of the plant shut down in 1970. However, much of the cement handling and wharfage remained in use and was incorporated into the adjacent Northfleet plant to the west.

### 3 AIMS AND METHODS

#### 3.1 Project aims

With due regard to the Historic England guidance the general aims of the survey, as agreed with the County Archaeologist, were:

- To create a metrically accurate record of the surviving structures.
- To aid ongoing interpretation of the structures within their historical context.
- To aid decision making in regard of mitigating the loss of historic fabric and help to understand the potential, the significance, and the options available for the next stage of investigation.

#### 3.2 Methods

##### *Introduction*

- 3.2.1 All works were undertaken in accordance with the methodology agreed and in compliance with the standards outlined in the Historic England guidance. The methods employed are summarised below.

##### *Fieldwork methods*

- 3.2.2 The metric survey was carried out using Leica GNSS GS07 Captivate, a Leica TS16 P 5" R500 Total Station and a Leica Scan Station P40 laser scanner.
- 3.2.3 The photogrammetric survey was carried out using a Pentax K1 mounting lens HD Pentax-D FA 15-30mm or a Pentax 18-55mm, a Canon EOS 60D mounting lens EFS 18-55mm and a telescopic camera pole.
- 3.2.4 Five control points were recorded with the GNSS instrument, averaging 200 measurements taken using an RTK correction service. This was later used to georeference the final dataset.
- 3.2.5 A closed loop traverse was carried out against a local grid to be used as reference frame for the registered point cloud. The traverse produced a final error of 0.005m Horizontal distance and a 0.013m in residual height.
- 3.2.6 The higher parts of the surviving structures were photographed using a telescopic pole. The aperture was maintained around the values of f11 and f13, with ISO constantly set up at



800. Sixteen targets for photogrammetry were placed around the structures and recorded with the total station. A total of 726 photographs were taken.

- 3.2.7 The laser scan survey was carried out using 6 black and white Leica targets fixed on tripods. The laser scan target positions were recorded using the closed loop traverse.
- 3.2.8 Twenty scans were recorded, twelve with a resolution of 6.3 mm @ 10 metres and eight, which are more detailed "window" scans, at 3.1 mm @ 10 metres.
- 3.2.9 The laser scan data was scaled and referenced using the data from the closed loop traverse.
- 3.2.10 The laser scan covers the entirety of the structures exposed with one scan being recorded on top of the stepped section to the south.
- 3.2.11 All reasonable precautions were taken to avoid data voids throughout the survey but some of the areas within the structures proved difficult to access due to the presence of unsafe holes, rubble, steel rods and high walls. The southernmost part of the site was also difficult to reach due to the presence of ramps for dumper tracks, spoil heaps and pile of rubble. Heavy machinery was in use and demolition works being carried out in close proximity, while the survey was being undertaken.

### 3.3 Data Processing

- 3.3.1 A total of twenty scans were processed in Leica Cyclone (version 2021.1.2) and registered with a total RMS of 0.004m. The average point spacing was reduced to 0.002mm. The photogrammetry point cloud was processed using Metashape Pro (version 1.7.5)
- 3.3.2 Registration results are shown in Table 1.
- 3.3.3 The terrestrial scanning produced a very dark coloured point cloud. This was unavoidable due to the changing light conditions caused by the weather, and shadows cast by high standing features along the south section (**Figure 6**).
- 3.3.4 The photogrammetry produced a dense cloud of 106,801,498 points and the laser scan a dense cloud of 296,185,412 points. The photogrammetric survey was registered against the laser scan data in Cloud Compare with a final RMS of 0.027. The unified point cloud was later used to produce a mesh, while all the orthographic images were produced from the photogrammetric model because of the unsuitable dark colour of the laser scan data.
- 3.3.5 The unified point cloud was then imported in Metashape to produce a unified textured mesh.

**Table 1** Registration Results

Registrations	Mean Point Error
P40- Registered Scanworld	0.004m
Photogrammetry Dense Cloud	0.027
Unified Point Cloud (Cloud Compare Registration)	0.0270m



### 3.4 Outputs

- 3.4.1 A unified point cloud was produced along with a full colour mesh created from the photogrammetric data.
- 3.4.2 A total of four orthographic images were created: an orthographic plan view (**Figure 3**), an elevation view of the south section NNE and an orthographic profile of the structures across the SSW-NNE axis (**Figure 4**), and a detailed elevation view of the kiln (**Figure 5**)
- 3.4.3 A perspective view of the site is shown in **Figure 6**.

## 4 RESULTS

- 4.1.1 The survey area comprises a long elevation facing an open area to the north-east, where features remain as low walls.
- 4.1.2 The complex includes a previously unknown “bottle” shaped cement kiln which has been partially removed by ongoing works, the inner brick face being exposed in the elevation (**Figure 4** top elevation).
- 4.1.3 Immediately ESE of the kiln is a vaulted structure, and to the north-west of the kiln are three reinforced concrete bays. The first bay, closest to the kiln, is about 18 metres long with an alcove built to its side, adjacent to the kiln. The other bays are approximately 12 and 8 metres long respectively, and have a concrete platform built into their back walls which is exposed in the elevation.
- 4.1.4 Immediately below the kiln, partially infilled with demolition rubble, is an aperture or void within a brickwork vaulted channel.
- 4.1.5 Four brickwork vaulted channels or runoffs have been exposed to the north-east of the kiln, running WNW-ESE, which appear to be directly connected to the base of the kiln by a channel.
- 4.1.6 To the south-east of the kiln are further structures or rooms, remaining as low walls with some concrete floors visible. (**Figure 3 & 6**). The remains of a concrete circular structure was also found.

## 5 CONCLUSIONS

- 5.1.1 The structures uncovered are believed to be part of the west side of the Bevan cement works, set up by Thomas Sturge in 1851 to the east of Robins and Co. The site was a well-known “Portland Cement” making centre from the second half of 1800s. The surviving structures have been surveyed to produce an accurate record to inform future interpretation and mitigation.

## 6 ARCHIVE STORAGE AND CURATION

### 6.1 OASIS

- 6.1.1 An OASIS online record (<http://oasis.ac.uk/pages/wiki/Main>) has been initiated, and key fields completed on Details, Location and Creators Forms. All appropriate parts of the OASIS online form will be completed for submission, and will include an uploaded .pdf version of the final report. Subject to any contractual requirements on confidentiality, copies



of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service ArchSearch catalogue.

## **6.2 Repository**

- 6.2.1 The archive resulting from the survey is currently held at the offices of Wessex Archaeology in Salisbury.
- 6.2.2 The site falls within the collecting area of Dartford Museum. The museum is not currently accepting archaeological archives. As there is no physical archive associated with this project, digital data deposition with the Archaeology Data Service (ADS) is recommended.

## **7 COPYRIGHT**

### **7.1 Archive and report copyright**

- 7.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the Copyright, Designs and Patents Act 1988 with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use shall be non-profitmaking, and conforms to the Copyright and Related Rights Regulations 2003. In some instances, certain regional museums may require absolute transfer of copyright, rather than a licence.
- 7.1.2 Information relating to the project will be deposited with the HER where it can be freely copied without reference to Wessex Archaeology for the purposes of archaeological research or Development Control within the planning process.

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## REFERENCES

- British Geological Survey online viewer <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>  
(accessed 2021)
- Brown, D H 2011 *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (revised edition). Archaeological Archives Forum
- English Heritage 2011 *Environmental Archaeology: a guide to theory and practice of methods, from sampling and recovery to post-excavation*. Swindon, Centre for Archaeology Guidelines
- Hasted, E 'Parishes: Northfleet.' in *The History and Topographical Survey of the County of Kent: Volume 3*. Canterbury: W Bristow, 1797. 302-318. British History Online.  
<http://www.british-history.ac.uk/survey-kent/vol3/pp302-318> accessed 20/10/2021
- Historic England 2015 *Metric Survey Specifications for Cultural Heritage*. Swindon, Historic England
- Historic England 2017 *Photogrammetric Applications for Cultural Heritage*. Swindon, Historic England
- SMA 1993 *Selection, Retention and Dispersal of Archaeological Collections*. Society of Museum Archaeologists
- SMA 1995 *Towards an Accessible Archaeological Archive*. Society of Museum Archaeologists
- Wessex Archaeology 2020 *Written Scheme of Investigation for Land at Northfleet Embankment West*, ref. 232900.2 WA 2020

## Internet sources

All websites below accessed on 20/10/2021.

Britain from Above <https://www.britainfromabove.org.uk/en>

British History Online. Edward Hasted, 'Parishes: Northfleet', in *The History and Topographical Survey of the County of Kent: Volume 3* (Canterbury, 1797), pp. 302-318.  
<http://www.british-history.ac.uk/survey-kent/vol3/pp302-318>

Cement Plants and Kilns in Britain and Ireland (Dylan Moore) <https://www.cementkilns.co.uk/>

About cement <https://www.cementkilns.co.uk/cement.html>

About "Roman" cement <https://www.cementkilns.co.uk/roman.html>

Robins [https://www.cementkilns.co.uk/cement\\_kiln\\_robins.html](https://www.cementkilns.co.uk/cement_kiln_robins.html)

Bevans [https://www.cementkilns.co.uk/cement\\_kiln\\_bevans.html](https://www.cementkilns.co.uk/cement_kiln_bevans.html)

About Aspdin Kiln, on Kent County Council "Exploring Kent's Past"  
<https://webapps.kent.gov.uk/KCC.ExploringKentsPast.Web.Sites.Public/>



Northfleet 1838 Tithe map and 1839 apportionment accessed on: The Genealogist  
<https://www.thegenealogist.co.uk/search/advanced/landowner/tithe-records/>

Ordnance Survey mapping viewed on:

National Library of Scotland map finder <https://maps.nls.uk/>

Old-maps <https://www.old-maps.co.uk/#/>

Wikimedia commons: File: Knight, Bevan and Sturge cement works, Northfleet.jpg  
[https://commons.wikimedia.org/wiki/File:Knight,\\_Bevan\\_and\\_Sturge\\_cement\\_works,\\_Northfleet.jpg](https://commons.wikimedia.org/wiki/File:Knight,_Bevan_and_Sturge_cement_works,_Northfleet.jpg)



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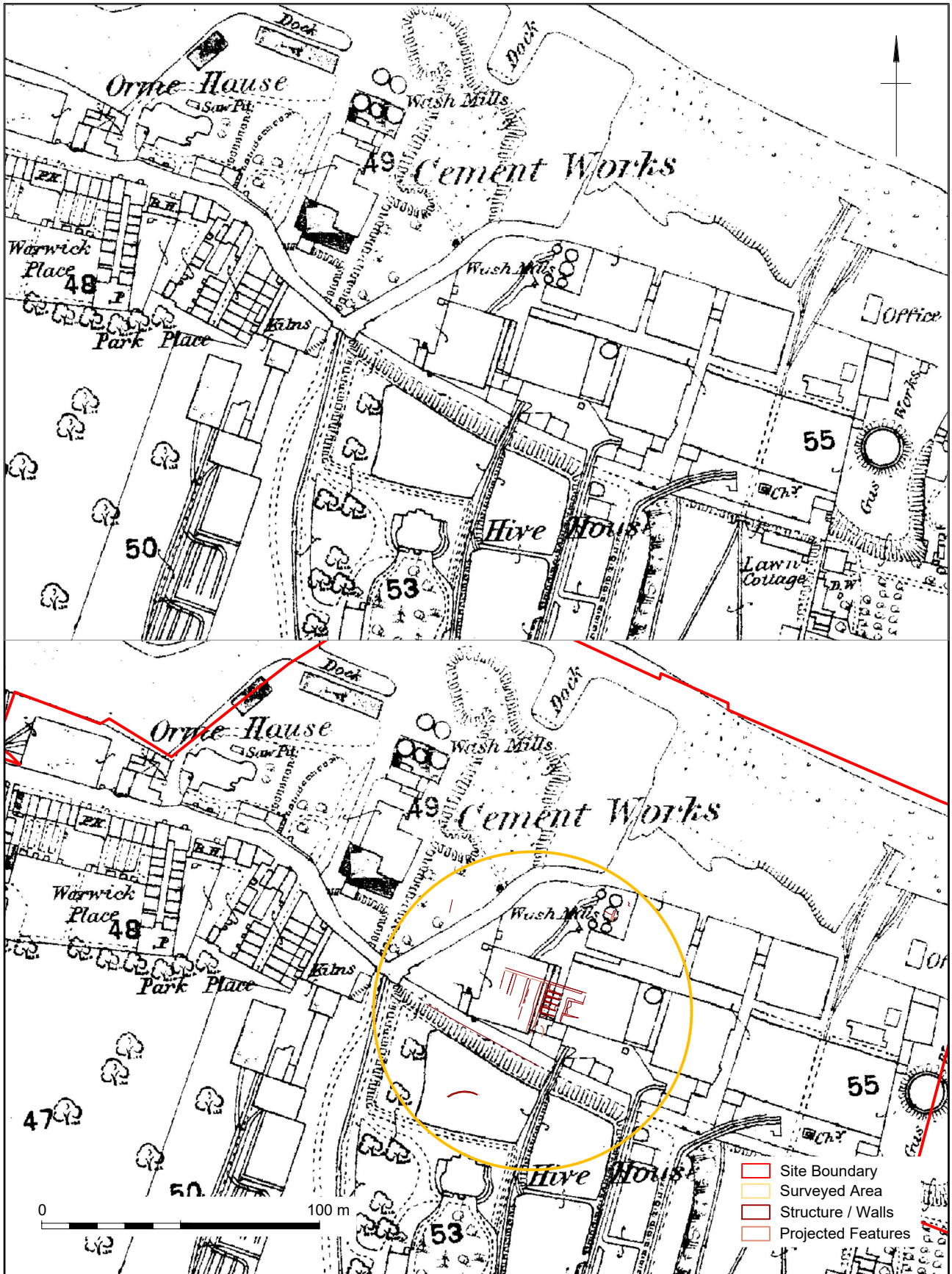


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Site Location and surveyed area

Figure 1





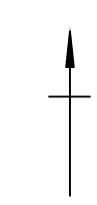
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
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1885 OS Mapping with and without survey results overlaid

Figure 2



Key:  
Elevations 

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Orthographic Plan View with elevation markers

Figure 3

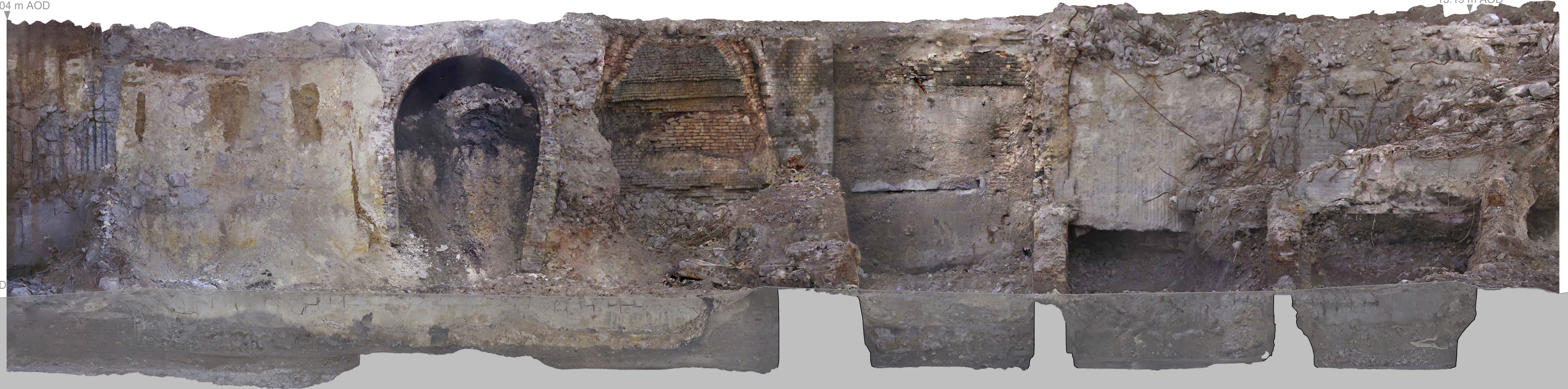
ESE

WNW

13.04 m AOD

13.19 m AOD

6.57 m AOD



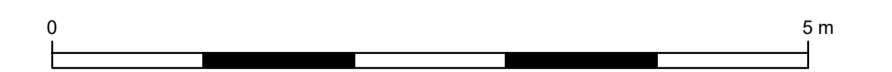
SSW

NNE

12.95 m AOD

Profile through kiln

6.62 m AOD




- Key:
- Wall profile
  - Ground surface in the foreground
  - Demolition rubble
  - ▼ Level

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North-west facing kiln elevation

Figure 5



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Perspective view of cement works structural remains, looking SSE

Figure 6

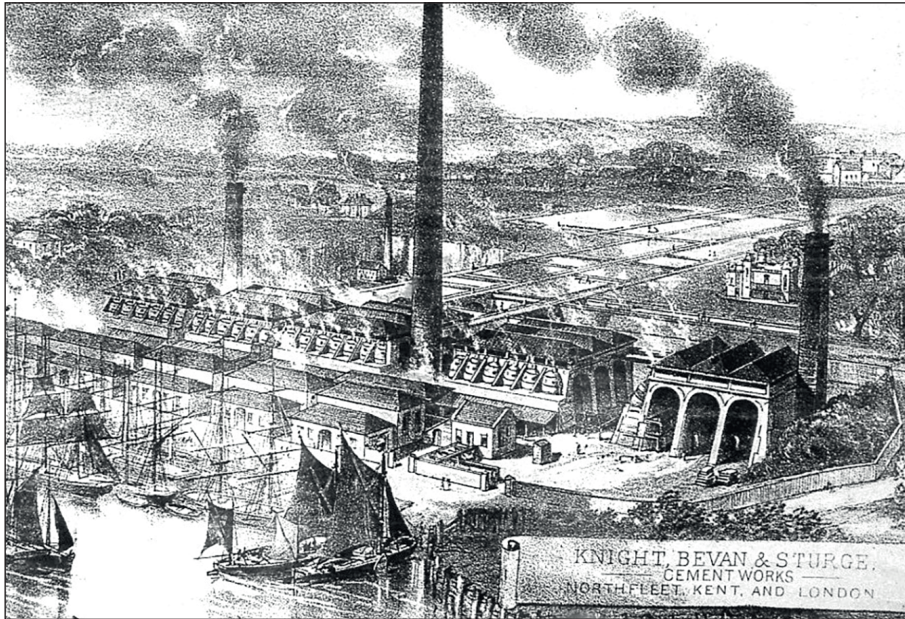



Plate 1: Engraving of the Knight, Bevan and Sturge cement works, Northfleet, UK. Sourced from Wikimedia Commons



Plate 2: Overview of site conditions and works

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	Date:	02/11/2021	Revision Number:	0
	Scale:	Not to scale	Illustrator:	AW
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